IDENTIFICATIONENDOPHYTIC MICROORGANISMS FROM CRANBERRY AND LINGONBERRY FRUITS BYSURFACE-ENHANCED RAMAN SPECTROSCOPY

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Endophytes are typically defined as microorganisms, that inhabit the plant endosphere asymptomatically. They play specific roles in plant growth promotion and protection [1]. Endophytic microbes may help with nutrient acquisition, produce growth-enhancing hormones, fungicides. Cranberry and lingonberry fruits are consumed all over the world. They are also widely studied for their bioactive compounds [2], however, their endomicrobiots not well studied, especially endophytes contained in the berries. Surface-Enhanced Raman Scattering Spectroscopy (SERS) is widely used for the detection of biomolecules- metabolites, nucleic acids, proteins and can also be used for the identification of microorganisms, cell characterization, determining information about the cell wall or intracellular metabolites and molecules. The aim of this study was to isolate endophytic microorganisms from wild grown cranberries (Vaccinium oxycoccus) and lingonberries (Vaccinium vitis-idaea) and to identify their molecular composition by SERS.

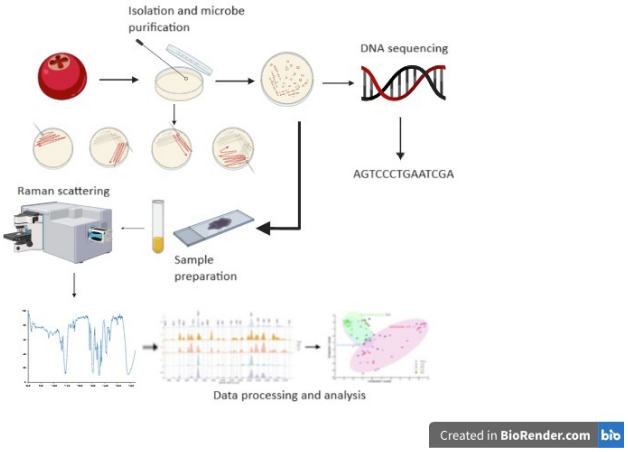

Fig. 1. Add a caption

Fig. 1. Scheme of research. In this study five microorganisms were isolated from cranbery fruit and one microorganism from lingonberry fruit. It was Staphylococcus hominis, Staphylococcus caprae, Bacillus cereus, Bacillus stratosphericus, Bacillus xiamenensis.

[1] D. Vaitiekūnaitė, et al., Endophytes from blueberry (Vaccinium sp.) fruit: Characterization of yeast and bacteria via label-free surface-enhanced Raman spectroscopy (SERS), Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy 275, 121158 (2022).

[2] P. Kylli, et al., Lingonberry (Vaccinium vitis–idaea) and European Cranberry (Vaccinium microcarpon) Proanthocyanidins: Isolation, Identification, and Bioactivities. Journal of Agricultural and Food Chemistry 59, 3373–3384, 1520-5118 (2011).